

57. (New) The sorbent cartridge of Claim 33, further comprising a removable cap covering the opening.

58. (New) The sorbent cartridge of Claim 46, further comprising a removable cap covering the opening.

59. (New) The sorbent cartridge of Claim 51, further comprising a removable cap covering the opening.

60. (New) The sorbent cartridge of Claim 54, further comprising a removable cap covering the opening.

IN THE SPECIFICATION

Please replace the current body of the specification with the attached and revised body of the specification.

REMARKS

Pending apparatus Claims 1-14 and 33-55 were rejected as anticipated or obvious. Method Claims 15-32 were previously withdrawn. The Examiner also objected to the specification, drawings and several claims. In view of this Amendment and the comments herein, reconsideration and withdrawal of the rejections are respectfully requested.

OBJECTIONS TO THE SPECIFICATION

A revised substitute specification (without claims) is submitted herewith. It corrects the numbering and typographical errors identified by the Examiner and additional ones. Paragraph numbers have also been added. A version of the specification with the changes marked, is submitted herewith. No new matter is added.

The Examiner also said the specification failed to provide antecedent basis for an opening size of about "2 to about 10 times the maximum diameter of the sorbent material" as defined in Claims 11 and 45. That claim language is found in original Claim 11 so there is antecedent basis. It is also found in the original specification in the paragraph corresponding to paragraph 0006.

Reconsideration and withdrawal of the objections to the specification is respectfully requested.

OBJECTIONS TO THE DRAWINGS

The drawings were objected to because the number 16 was used in the specification to designate the sorbent volume and a porous layer, at page 13. The specification has been revised so the prior reference to porous layer 16 is now porous layer 14.

The drawings were objected to because the number 19 was used in the specification to designate the opening 19 and the end 19 of a cartridge, at page 9. The specification has been revised so the prior reference to end 19 is now end 18.

The drawings were objected because Figure 2 shows the sorbent material as filling all the sorbent volume whereas the claims define the sorbent as filling about 50-60% of the sorbent volume, or substantially filling the sorbent volume. The depicted spherical sorbent abut each other in three dimensions and that leaves interstitial voids or space between the abutting sorbent. The interstitial space is believed to comprise 40-50% of the volume so that Figure 2 depicts the requirements of the claims.

Reconsideration and withdrawal of the objections to the drawings is respectfully requested.

Revised drawings are submitted. Fig. 2 shows three sorbent 24 adjacent the opening 19, as shown in the informal drawings submitted with the original application. The prior formal drawings showed two sorbent 24 inward from the opening. Also Fig. 4 is added to more clearly illustrate the sticky layer of solvent as defined in original dependent claims 13-14, and as discussed in the specification. No new matter is added. Approval of the revised drawings is respectfully requested.

OBJECTIONS TO THE CLAIMS

Claims 1, 33, 47 and 50 were objected to as needing revision to define “an opening.” Claim 1 is amended as suggested by the Examiner. The remaining claims are believed to already define “an” opening.

Claim 33 is amended to define “the opening in the hollow tip.”

In Claim 47, “dip” is changed to “tip.”

Claim 51 is revised to define “the opening in the pipette tip.”

These claim changes are making explicit that which was already implicit in the claim, and thus do not narrow the claims.

In view of the amendments, reconsideration and withdrawal of the objections is requested.

SECTION 112 REJECTIONS

Claims 43-44 were rejected as containing subject matter not adequately described in the specification. **Claim 43** says “the sorbent comprises a plurality of particles filling between about 50-60% of the sorbent volume.” The specification at page 9, beginning at line 9, states:

The sorbent volume once filled will hold about 50-60% solid sorbent. The remaining portion of the sorbent volume 16 comprises the empty, interstitial space between the particles that comprise the sorbent 24. It is difficult to pack more than that amount of granular material in a volume without crushing the material.

That is believed sufficiently definite to convey to one skilled in the art that “the sorbent comprises a plurality of particles filling between about 50-60% of the sorbent volume.”

Claim 44 was found to lack support for a frit or screen at the opening. Antecedent basis is found in part at page 10, lines 8-10. Further, Claim 44 is deleted so the rejection is not longer apt.

Claim 2 was rejected for being indefinite because “the pipette” lacked antecedent basis. Claim 2 is amended to define “a pipette tip”. The clarification does not narrow the claim.

Claims 4, 11 & 45 were rejected as indefinite because the following highlighted phrase was not believed understandable: “the size of the opening being **about 2-10 times**” the size of specified sorbent material. The phrase is believed understandable to one skilled in the art and includes the specified range. Antecedent basis is found in part at page 2, lines 24-30, and in original Claim 4. The Examiner says no examples are given, but no examples are believed needed to enable a person skilled in the art to understand this phrase. To resolve the Examiner’s doubts, the claims are amended to define the opening size being “from about 2 to about 10 times” the size of the specified material. That makes explicit what was already implicit and thus does not narrow the claims.

Claim 8 (and Dependent Claims 9-10 & 13-14) define “the barrier” and that term was said to lack antecedent basis. Claim 8 is amended to refer to “the filter” which is the meaning the Examiner used during examination. The amendment makes explicit what was already implicit and thus does not narrow the claim. Claims 9-10 and 13-14 depend from Claim 8 so that the clarification of Claim 8 resolves the objection to these dependent claims. .

Claim 12 was initially considered indefinite because “the syringe” lacked antecedent basis.

Claim 33 was not rejected but the Examiner opined as to his construction. As the claim is

not rejected no response is needed. Nevertheless, the Applicant notes that page 12 of the specification also refers to ledges.

Claims 38 and 48 say “the sorbent material **substantially** fills the sorbent volume” and the use of “substantially” was perceived as indefinite. The specification at page 10, states:

The sorbent 24 advantageously substantially fills all of the volume 16, and is packed tight enough so that sorbent 24 does not fall out of the opening 19 in the distal tip 18.

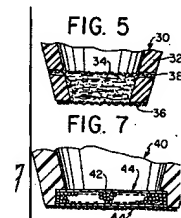
As mentioned above, using a solvent that leaves the sorbent slightly sticky can help the sorbent from unintentionally leaving the sorbent volume 16. The sorbent volume once filled will hold about 50-60% solid sorbent. The remaining portion of the sorbent volume 16 comprises the empty, interstitial space between the particles that comprise the sorbent 24. It is difficult to pack more than that amount of granular material in a volume without crushing the material. If less than that amount is packed in to the volume, the packing is so loose that it falls out.

That description is believed to sufficiently define “substantially” so that one skilled in the art would understand what is meant by “substantially.”

Claims 46 & 47 define “allowing the passage of liquids” and that was found to lack antecedent basis because the claim previously defined “processing fluids.” Claim 46 is amended to “allowing the passage of processing fluids.” This does not narrow the claims.

SECTION 102 REJECTIONS ON MEHL

Claims 1, 4, 8-9, 11, 35 and 37-38 and 43-50 were rejected as anticipated by Mehl. As seen in the adjacent images from Mehl, it describes filters 30 and 40, with filter 30 having material 34 held between mesh retainers 36, 38, and filter 40 has beads or particles 42 held between two disc membranes 44. See Col. 5. But in either embodiment the material is held in place between two porous barriers or retainers.



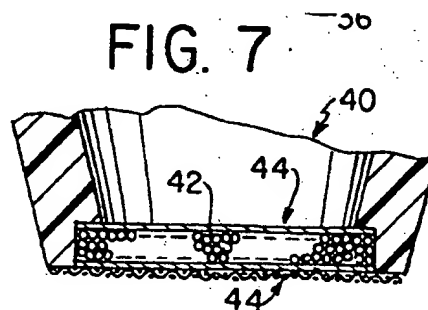
In Mehl, the filters 30, 40 are placed in a centrifuge and spun at ten thousand times gravity and the retainers hold the filter material in place. Mehl states: “The discs in these filters are rigidly supported on their associated support members and are capable of withstanding forces as high as ten thousand times gravity (10,000g) in a centrifuge.” Col. 5, lines 32-35.

Independent Claims 1, 8, 35 and 46 define a different structure. Claim 1 (opening is not covered by a porous barrier), Cl. 8 (“no further filter being in the predetermined volume”), Cl. 35 (“the sorbent not being restrained by a porous barrier over the opening from being expelled from the

opening”), Cl. 46 & 51 (“the opening having no porous barrier restraining the sorbent from passing into or out of the sorbent volume through the opening”).

The claimed combinations lack the material held between two barriers, so there is no anticipation. The rejected claims that depend from the above identified independent claims are allowable for the same reason as the independent claims.

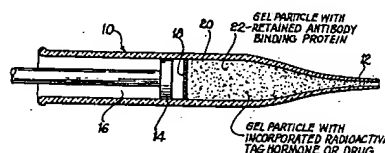
Moreover, dependent Claims 4, 11 and 45 were rejected on the ground that the opening in the pipette tip 40 was from about 2-10 times the size of the material used in the sorbent as shown in Fig. 7 of Mehl. But Fig. 7 of Mehl is shown here, and it shows considerably more than 10 spheres in the opening. The Examiner must construe the claims reasonably, and Fig. 7 fails to show about 2-10 spheres in the opening under any reasonable claim construction.



In view of the above comments and amendments, reconsideration and withdrawal of the rejection is respectfully requested.

SECTION 102 REJECTIONS BASED ON UPDIKE

Claims 35-3, 43-52 and 54 were rejected as anticipated by Updike. Updike shows dry gel particles contained in a syringe 10 with syringe needle 12, as shown here. Col. 2, lines 5-8. The dry gel comprises about 2/3 the volume, with voids comprising 1/3 the volume. Col. 3, lines 1-7. Various fluids are passed through the voids in the gel but the gel itself remains in the syringe. Using a dry gel is critical to Updike because the dry gel absorbs a known amount of liquid and that is critical for Uptake’s application. Col. 6, lines 52-57, Col. 7, lines 5-24.



Independent claims 35, 46 and 51 are amended to define a slurry of sorbent particles sized to flow into and be expelled out of the opening, with no blockage preventing passage of the sorbent out of the opening. For example, Claim 35 defines a slurry of sorbent material, with “the sorbent material being adapted to pass into and out of the opening with the slurry.”

Updike lacks a slurry of particles and teaches the use of a dry gel, which even when it absorbs water remains a gel rather than a slurry. Updike also lacks sorbent particles that can pass into and

out of the opening as the gel in Updike remains in the syringe while various elutents and solvents pass through the voids in the gel matrix.

Reconsideration and withdrawal of the rejection on Updike is thus respectfully requested for the independent claims, and the claims dependent thereon.

Further, Claim 52 and 54 were rejected in paragraphs 49-50 based on a purported disclosure of particles 22 with a coating of gel and antibody binding protein that is sticky enough to cause the particles to stick together and resist passage out of the opening in the tip as in the figure and columns 1-6. The cited portions do not show or describe that. The first six columns of Updike describe a dry gel that is packed into the syringe. Col. 2, lines 61 to Col. 3, line 7. The dry gel contains the proteins within the gel, so the proteins do not form a "coating" as defined in Claims 52, 54. Col. 2, lines 34-46.

Moreover, it is critical to Updike that the gel be dry. Col. 6, lines 52-57. If it is dry, Updike certainly does not explain how it forms a sticky coating because the sticky aspect implies wetness that is contrary to Updike's requirement for a dry gel. If the Examiner disagrees and continues to maintain that Updike discloses the sticky coating, please point to the particular language believed to support the Examiner's position. A general reference to six columns in a patent is insufficient guidance for the undersigned to identify the basis in the record on which the Examiner's relies.

OBVIOUSNESS REJECTION BASED ON MEHL

At paragraph 52-55 of the Office Action Claims 5 and 10 were rejected as obvious over Mehl. Dependent Claims 5 and 10 are allowable for the same reasons as Claim 1. On Claim 10 there is also no motivation to modify Mehl's disk. The Examiner says no additional means are required to retain/fasten the filter or barrier in the tip so the cost of adhesives or other fastening means can be avoided. But Mehl fastens the disc and filter to withstand 10,000 g's centrifugal force. To eliminate the fastening means of Mehl would be contrary to the teachings of Mehl and destroys its function and purpose.

OBVIOUSNESS REJECTION OF CLAIMS 1-4 BASED ON WHITE & MEHL

At paragraph 56 of the Office Action Claims 1-4 were rejected as obvious over White in view of Mehl. White admittedly fails to disclose a porous barrier in a tapered cavity which allows processing fluids therethrough but prevents passage of the sorbent material. Mehl was presumably

cited for those deficiencies, although it is difficult to tell because the Examiner only says White is modified “by adding the embodiments taught by Mehl.”

White uses a pipette for withdrawing and ejecting a sample. But White has a hydrophilic plug 18 that allows gasses to pass, and that plug swells upon contact with liquids to entirely block the pipette and prevent passage of liquids and gasses through the plug. Mehl is discussed above, but it discloses a tip specially designed to withstand a 10,000 g centrifugal force.

High G Forces: The Examiner says it is obvious to modify White by adding the embodiments of Mehl “in order to provide an alternative design for and improved sorbent cartridge which has the ability to withstand forces as high as ten thousand times gravity (if used in a centrifuge), without leakage . . .” Office Action at page 23.

If the hydrophilic plug of White is removed so the filter of Mehl can be used, that renders White useless for its intended purpose of preventing contamination by blocking passage of fluid through the plug. Destroying the function of White and negating the purpose for which White was designed certainly does not suggest the proffered modification and does not motivate one to attempt the combination. It is improper to combine references where to modify the primary reference would “destroy its structural identity and mode of operation.” *Ex parte Jackson*, 146 USPQ 409, 410 (PTO Bd. App. 1964); *See Ex. parte Hartman*, 186 USPQ 336, 367 (PTO Bd. App. 1974) (improper to combine references “since to do so would destroy that on which the invention is based”).

The record shows no motivation for this “alternative” design proposed by the Examiner, especially as it would destroy the purpose for which White’s pipette tip was created. The only motivation is the desire to achieve the combination defined in Claim 1, and that is an improper use of the claims.

Separation Applications: The Examiner also says the proffered (and undefined) combination of White and Mehl would be “better suited in separation applications involving colloidal suspensions, which allows liquid portion/liquids of the suspension to pass through the sorbent material (42) but provides a barrier for passage of the colloid/solid materials of the suspension (see Col. 5 of Mehl).” Office Action at 23.

The Examiner cites nothing to show a need for better separation apparatus, and nothing showing a deficiency in that art. The proffered rationale seems more like an after the fact attempt to

justify the proffered combination of disparate references. This is especially so because the hydrophilic plug in White will completely block any liquid and gas flow and stop any separation, and if the hydrophilic plug of White is removed then the entire purpose of White is destroyed. Altering the hydrophilic plug in White goes against the teachings of White. Moreover, a person looking at Mehl's high strength centrifugal tips would not look to a pipette tip for guidance.

There is No Suggestion To Modify Or Combine In The Record

The Examiner must not only explain the motivation for modifying or combining references, but must point to some concrete evidence in the record supporting the motivation to modify or combine.

As an administrative tribunal, the Board clearly has expertise in the subject matter over which it exercises jurisdiction. This expertise may provide sufficient support for conclusions as to peripheral issues. With respect to core factual findings in a determination of patentability, however, **the Board cannot simply reach conclusions based on its own understanding or experience - or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings.** To hold otherwise would render the process of appellate review for substantial evidence on the record a meaningless exercise. [In *re Zurko*, 59 USPQ2d 1693, 1697 (Fed. Cir. 20010) (emphasis added)].

Here, there is no rational basis to modify/combine the White pipette tip with the Mehl centrifugal tip. The proposed modification destroys the functionality of the references. There is also no concrete evidence in the record on which to base those modifications/combinations. The Examiner has not met the burden needed to establish even a *prima facie* case of obviousness. Moreover, the Examiner is urged to avoid the insidious temptation to use hindsight to pick and choose isolated portions of the references in order to achieve the claimed combination, and then fabricate a rationale to justify the proffered combination. *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983) ("To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.")

The Examiner is thus requested to reconsider, and withdraw the obviousness rejection on Claims 1-4. Claims 2-4 depend from Claim 1, and are allowable for the same reasons as Claim 1.

REJECTION OF CLAIM 12 ON MEHL AND WHITE

Claim 12 was rejected as obvious over Mehl in view of White. Mehl admittedly fails to disclose a syringe being received in a second opening of the pipette tip and containing a fluid drawn from the distal opening through the sorbent material and the filter. White is apparently cited for that aspect. The reason for that proffered combination is “to provide a means for fluid flow/drawing fluid and be processed or filtered by the sorbent material and the filter, in order to remove a desired component in the fluid being processed or filtered.” Office Action at pages 25-26, ¶ 60-61.

Nothing in the record shows a need for the proffered result. No deficiencies in the art of removing desired components are identified. Nothing shows the proffered combination would work as well as, or better than the existing devices. That is speculation. An Examiner cannot simply reach conclusions based on his own understanding or experience - or on its assessment of what would be basic knowledge or common sense. Rather, the Examiner must point to some concrete evidence in the record in support of these findings. To hold otherwise would render the process of appellate review for substantial evidence on the record a meaningless exercise. *In re Zurko*, 59 USPQ2d 1693, 1697 (Fed. Cir. 20010).

Mehl’s tip is specially designed to withstand 10,000 g’s in a centrifuge. There is no suggestion to use that high strength design in a pipette tip, let alone the specifically shaped pipette tip of White. To remove White’s hydrophilic plug 18 and replace it with Mehl’s filter would render White useless for its intended use. To put White’s pipette tip and liquid in Mehl’s centrifuge would splatter White’s liquid all over the place and thus destroy the usefulness of White and Mehl. It is improper to combine references where to modify the primary reference would “destroy its structural identity and mode of operation.” *Ex parte Jackson*, 146 USPQ 409, 410 (PTO Bd. App. 1964); *See Ex. parte Hartman*, 186 USPQ 336, 367 (PTO Bd. App. 1974) (improper to combine references “since to do so would destroy that on which the invention is based”).

The Examiner is thus requested to reconsider, and withdraw the obviousness rejection on Claim 12.

ANTICIPATION AND OBVIOUSNESS REJECTION OF CLAIMS 33-34

Claims 33-34 were rejected as anticipated by or obvious over Updike.

Independent Claim 33 was identified by the Examiner as being a means plus function claim.

Office Action at paragraph 15 f), page 9. Such means claims must be read in light of the specification and must conform to 35 U.S.C. §112 ¶6. In *re Donaldson Co., Inc.*, 16 F.3d 1189, 1195, 29 USPQ2d 1845 (Fed. Cir. 1994) (en banc) (“Accordingly, the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a patentability determination”). The claimed means is not found in Updike.

The Examiner is thus requested to reconsider, and withdraw the rejection on independent Claim 33 and dependent Claim 34.

OBVIOUSNESS REJECTION OF CLAIMS BASED ON MEHL AND BOZZACCO

Claims 6-7, 13-14 and 40-42 were rejected as obvious over Mehl in view of Bozzacco (2,806,509). These claims further define the sorbent material being coated with a solvent that is sticky enough to cause the particles to stick together and resist passage out of the opening in the tip under gravitational forces. Antecedent basis for the gravitational force aspect is found in part at paragraph 0043, page 12. Mehl is cited for an apparatus to restrain sorbent material comprising a plurality of particles 42. Mehl is actually designed for a centrifugal apparatus exerting forces of 10,000 g's. Mehl admittedly lacks coating the particles with a solvent that makes them sticky enough to stick together and resist passage out of the opening in the tip.

Bozzacco is cited for the sticky solvent. Bozzacco describes a 1960's method for making laminated structures using hollow beads surrounded by thermosetting resins. Col. 1, lines 45-48 (“object of invention”). The resins are heated to temperatures of several several hundred degrees so the resin melts and forms a dense, strong laminated structure.

The Requirements For Obviousness

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. In *re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in prior art references or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art,

not in Applicant's disclosure. In *re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991), M.P.E.P. § 2143. None of these requirements are met.

There Is No Reasonable Expectation Of Success

The claim defines a sorbent cartridge for use in preparing samples for chemical analysis. One skilled in the art of preparing samples for chemical analysis would not look to laminating methods for sandwich structures for guidance or for any input. The technologies, uses and purposes are very, very different. Bozzacco is not analogous art.

If Bozzacco were used, it would result in a thermosetting resin being used that would cause the sorbent to be permanently encased in a thermosetting laminate. That would make the sorbent inaccessible to the analytical chemicals, and render it useless for its intended purpose of chemical analysis. Bozzacco uses an impermeable laminate which seals the "sorbent" from access to any fluids that may be usable for chemical analysis.

The Examiner says silica is a well-known absorbent/sorbent material so it would be obvious to use the sorbent material of Bozzacco to provide an alternative form of sorbent. Office Action at 27, ¶ 66. Bozzacco describes "placing a filler comprised of small thin walled hollow beads coated with a heat tackifiable resin and a powdered metal between the confines of outer skins and thereafter heating and compressing the entire assembly in order to compact the beads and to gel the resin." Col. 1, lines 64-68.

There is no reference showing hollow beads will work as a sorbent in chemical analysis. Any of the various processing fluids entering the hollow sphere are likely to adversely alter the chemical analysis, and that teaches against using Bozzacco's silica and teaches against using Bozzacco's laminate.

There is no reference showing that the thermosetting resins are suitable for use in the sorbent cartridge. To the contrary, heating the Bozzacco thermosetting resins will result in a solidified structure that will prevent any analytical chemicals from reaching the silica sorbent. That teaches against using Bozzacco's resins and beads.

Moreover, there is no reasonable expectation of success because the claims define a sorbent coated with a solvent that is sticky. Bozzacco coats particle with resin in a solvent solution. Col. 3, lines 1-7. There is no reason in Bozzacco to use the solvent by itself, without the resin. Indeed, to

do so would prevent Bozzacco from working to form a laminate. There is also no showing in Bozzacco that the listed solvents would work as defined in the claims.

There Is No Suggestion To Modify & Combine

The Examiner says Bozzacco's resin and hollow silica beads would be combined with Mehl "in order to provide an alternative form as well as an effective sorbent material which has the ability to retain itself (i.e., self-supporting) in the hollow cavity of the pipette tip of Mehl, thereby eliminating the need of additional porous support materials such as the thin membrane (44 in Mehl) and saving costs in the manufacture of the sorbent cartridge."

If Bozzacco's resin is used it will result in a non-porous, solid plug that is useless for chemical analysis and useless for centrifugal applications. There is thus no suggestion to use Bozzacco's resin. Mehl's centrifuge provides a mechanism to resist a 10,000 g centrifugal force by using barriers on opposing sides of the sorbent to confine the sorbent. If one of Mehl's confining barriers is eliminated, it destroys the function of Mehl. There is no suggestion for doing that. Moreover, it is improper to combine references where to modify the primary reference would "destroy its structural identity and mode of operation." *Ex parte Jackson*, 146 USPQ 409, 410 (PTO Bd. App. 1964); *See Ex. parte Hartman*, 186 USPQ 336, 367 (PTO Bd. App. 1974) (improper to combine references "since to do so would destroy that on which the invention is based").

The Examiner hypothesizes reasons for making the drastic modifications and combinations needed to combine parts of Bozzacco and Mehl. But there is nothing in the record showing that Mehl is deficient for its centrifugal use, or that the hypothesized needs even exist. The Examiner cannot simply reach conclusions based on his own understanding or experience - or on its assessment of what would be basic knowledge or common sense. Rather, the Examiner must point to some concrete evidence in the record in support of these findings. To hold otherwise would render the process of appellate review for substantial evidence on the record a meaningless exercise. In *re Zurko*, 59 USPQ2d 1693, 1697 (Fed. Cir. 20010).

Moreover, several claims define a sorbent coated with a solvent that is sticky. Bozzacco coats particles with resin in a solvent solution. Col. 3, lines 1-7. There is no suggestion in Bozzacco to use the solvent by itself, without the resin. Indeed, to do so would prevent Bozzacco from working to form a laminate.

The Examiner is urged to avoid the insidious temptation to use hindsight to pick and choose isolated portions of the references in order to achieve the claimed combination, and then fabricate a rational to justify the proffered combination. That is improper.

In view of the above comments, the Examiner is requested to reconsider, and withdraw, the rejection on claims defining the solvent and sticky coating.

“STICKEY”

Several claims are clarified to define the sticky coating as helping to resist the sorbent from falling out of the opening under gravity, but allowing expulsion under pressure on the pipette. Antecedent basis for not falling out under gravity is found in part at paragraph 0043, page 12. Antecedent basis for allowing sorbent expulsion is found in part at page 11, paragraph 0040.

CONCLUSION

For the above reasons, the amended claims are believed to be in a condition for allowance and such allowance is respectfully requested. If the Examiner has any questions, please contact the undersigned in order to resolve any matters over the phone and to pass the application to issuance.

Respectfully submitted,

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3/25/03

By: _____

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Marked Version To Show Changes Made In Claims

1. (Twice Amended) A sorbent cartridge for use in preparing samples for chemical analysis, comprising:

a pipette tip having a longitudinal axis and a hollow distal tip with tapered walls defining an interior cavity extending along the axis and having an opening at a distal end of the tip which opening is not covered by a porous barrier;

a porous barrier in the tapered cavity placed at a predetermined location in the tip to define a sorbent volume between the barrier, the cavity walls and the opening at the distal end of the tip, the barrier allowing processing fluids to pass through the barrier; and

a sorbent material in the sorbent volume and extending from the opening toward the barrier, the sorbent material being selected for use in the chemical analysis and the porous barrier being selected to prevent passage of the sorbent material past the porous barrier and out of the sorbent volume.

2. (Once Amended) The sorbent cartridge of Claim 1, further comprising a manually operated suction device on the pipette tip to exert a suction on the pipette tip to draw processing fluids through the opening in the tip, through the sorbent material and through the porous barrier.

4. (Once Amended) The sorbent cartridge of Claim 1, wherein the sorbent material comprises a plurality of particles and the size of the opening in the tip is from about 2 to about 10 [2-10] times the size of the **[material]** particles used in the sorbent material.

6. (Twice Amended) The sorbent cartridge of Claim 1, wherein the sorbent material comprises a plurality of particles with a coating of a solvent on the particles that is sticky enough to cause the particles to stick together and resist passage out of the opening in the tip under gravitational forces while allowing sorbent to be expelled under pressure.

8. (Twice Amended) A sorbent cartridge, comprising:

a pipette tip having an interior cavity in fluid communication with a distal opening located in the tip;

a filter placed in the tip and defining a predetermined volume that extends between the **[barrier]** filter and the distal opening with no further filter being in the predetermined

volume; and

a sorbent material substantially filling the volume, the filter retaining the sorbent material in the predetermined volume while allowing passage of processing fluids through the filter during use of the cartridge.

11. (Twice Amended) The sorbent cartridge of Claim 8, wherein the sorbent material comprises particles having diameters and wherein the distal opening has a diameter of about 2 to about 10 [2-10] times the maximum diameter of the sorbent material.

12. (Once Amended) The sorbent cartridge of Claim 9, wherein the pipette tip [syringe] contains a fluid drawn from the distal opening through the sorbent material and filter.

13. (Twice Amended) The sorbent cartridge of Claim 8, wherein the sorbent material comprises a plurality of particles having a coating of a solvent that is sticky enough to cause the particles of the sorbent material to stick together and resist passage out of the opening in the tip under the influence of gravitational forces while allowing sorbent to be expelled under pressure.

33. (Twice Amended) A sorbent cartridge for use in preparing samples for chemical analysis, comprising:

a hollow tip having an opening in a distal end;

means in the tip for retaining a porous barrier at a predetermined location to define a sorbent volume between the barrier and the opening in the hollow tip, with no porous barrier being interposed between the opening and said means; and

a sorbent material between the opening and said means retained in the sorbent volume by the porous barrier for use in the chemical analysis, the barrier allowing passage of fluids but not the sorbent material, during use of the sorbent cartridge.

35. (Once Amended) A sorbent cartridge for use in preparing samples for chemical analysis, comprising:

a tip having a longitudinal axis and a distal tip having cavity walls that define an interior cavity extending along the axis with an opening at a distal end of the tip;

a porous barrier in the cavity placed at a predetermined location in the tip to define a sorbent volume between the barrier, the cavity walls and the opening at the distal end of the tip, the barrier allowing processing fluids to pass through the barrier; and

a slurry of sorbent material in the sorbent volume and extending from the opening toward the barrier, the sorbent not being restrained by a porous barrier over the opening from being expelled from the opening, the sorbent material being selected for use in the chemical analysis and the barrier being selected to prevent passage of the sorbent material out of the sorbent volume, the sorbent material being adapted to pass into and out of the opening with the slurry.

44. (Once Amended) The sorbent cartridge of Claim 35, further comprising a cap covering [one of a frit or screen at] the opening and placed to prevent sorbent from passing out of the opening.

45. (Once Amended) The sorbent cartridge of Claim 35, wherein the sorbent material comprises particles having diameters and wherein the distal opening has a diameter of about 2 to about 10 [2-10] times the maximum diameter of the particles.

46. (Once Amended) A sorbent cartridge for use in preparing samples for chemical analysis, comprising:

a tip having a longitudinal axis and a distal tip having cavity walls that define an interior cavity extending along the axis with an opening at a distal end of the tip;

a porous barrier at not more than one location inside the cavity in the tip and defining a sorbent volume between the porous barrier, the cavity walls and the opening at the distal end of the tip, the porous barrier allowing processing fluids to pass through the barrier; and

a slurry of sorbent material in the sorbent volume and extending from the opening toward the barrier, the sorbent material being selected for use in the chemical analysis and the barrier being selected to prevent passage of the sorbent material out of the sorbent volume while allowing the passage of [liquids] processing fluids through the porous barrier, the sorbent being sized to pass into and out of the opening with the slurry and the opening having no porous barrier restraining the sorbent from passing into or out of the sorbent volume through the opening.

47. (Once Amended) The sorbent cartridge of Claim 46, wherein the tip is tapered toward the opening in the distal end of the [dip] tip.

51. (Once Amended) A sorbent cartridge for use in preparing samples for chemical analysis, comprising:

a tip having a longitudinal axis and a distal tip having cavity walls that define a tapered interior cavity extending along the axis with an opening at a distal end of the tip;

a porous barrier at not more than one location inside the cavity in the tip and defining a sorbent volume between the porous barrier, the cavity walls and the opening at the distal end of the tip, the porous barrier allowing processing fluids to pass through the barrier; and

a slurry of sorbent material in the sorbent volume and extending from the opening to the barrier, the sorbent material being selected for use in the chemical analysis and the barrier being selected to prevent passage of the sorbent material out of the sorbent volume while allowing the passage of [liquids] processing fluids through the porous barrier, the sorbent being adapted to pass into and out of the opening with the slurry, the opening having no porous barrier restraining the sorbent from passing into or out of the sorbent volume through the opening.

52. (Once Amended) A sorbent cartridge for use in preparing samples for chemical analysis, comprising:

a pipette tip having a longitudinal axis and a hollow distal tip with tapered walls defining an interior cavity extending along the axis and opening at a distal end of the tip which opening is not blocked by a porous barrier;

a porous barrier in the tapered cavity placed at a predetermined location in the tip to define a sorbent volume between the barrier, the cavity walls and the opening at the distal end of the tip, the barrier allowing processing fluids to pass through the barrier; and

a sorbent material in the sorbent volume, the sorbent material being selected for use in the chemical analysis and the barrier being selected to prevent passage of the sorbent material out of the sorbent volume, the sorbent material comprising a plurality of particles with a coating of a solvent on the particles that is sticky enough to cause the particles to stick together and resist passage out of the opening in the tip under the influence of gravitational forces while allowing sorbent to be expelled under pressure.

54. (Once Amended) A sorbent cartridge, comprising:

a pipette tip having an interior cavity in fluid communication with a distal opening located in the tip, the opening not being blocked by a porous cover;

a filter placed in the tip and defining a predetermined volume between the barrier and the distal opening; and

a sorbent material substantially filling the volume, the filter retaining the sorbent material in the predetermined volume while allowing passage of processing fluids through the filter during use of the cartridge, the sorbent material comprising a plurality of particles having a coating of a solvent that is sticky enough to cause the particles of the sorbent material to stick together and resist passage out of the opening in the tip under the influence of gravitational forces while allowing sorbent to be expelled under pressure.

56. (New) The sorbent cartridge of Claim 1, further comprising a removable cap covering the opening.

57. (New) The sorbent cartridge of Claim 33, further comprising a removable cap covering the opening.

58. (New) The sorbent cartridge of Claim 46, further comprising a removable cap covering the opening.

59. (New) The sorbent cartridge of Claim 51, further comprising a removable cap covering the opening.

60. (New) The sorbent cartridge of Claim 54, further comprising a removable cap covering the opening.